

**TEACHERS' PERCEPTION TOWARDS VIRTUAL LEARNING
ENVIRONMENT**

ANA HAZIQAH BINTI A RASHID

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To my parents,

Ever dearest Bonda *Rosnah Hosnan*,

Beloved dearest Ayahanda *A.Rashid Monshee*

And not to be forgotten my beloved sisters and brother,

Fatin Amrina, Yuhanis Khalida and Abdullah Ameir

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ABSTRACT

Nowadays, teachers are having difficulty in integrating technology into the curriculum and instructions besides needing extra time to integrate it. The introduction of Frog VLE (Virtual Learning Environment) application in schools has raised the necessity to investigate teachers' perception where the implementation of Frog VLE is highly influenced by teachers' tendency of using the tool. Thus, the objectives of this study are to identify the teacher's perceptions to use the application as one of the tools for teaching and learning based on level of readiness, also, based on the main construct of Technology Acceptance Model (TAM) which include teachers' acceptance, perceived usefulness and perceived ease of use. This study also investigates the influence of the application towards teacher's perception. This study applied survey design using a questionnaire. The questionnaire was self-developed and is reliable with the reliability value of 0.98. Samples were selected using purposive sampling where 178 school teachers in Johor state who had used the application participated in this study. Questionnaires were distributed during face-to-face meeting and via online. Data were analysed to obtain mean, frequencies and correlation values using the SPSS software. Multiple regression was conducted to finally investigate the influence of VLE towards the teacher's perception. Teachers level of readiness is at the moderate level (mean = 3.67) and they also moderately accept the implementation of Frog VLE application (mean = 3.65). The teachers' also feel that Frog VLE application is useful (mean = 3.58) and it is quite easy to use (mean = 3.34) for teaching and learning. However, teachers' acceptance is not related to their readiness, their perception to use Frog VLE application based on its usefulness and ease of use at $p < 0.05$ confidence level. The findings also showed that teacher's years of teaching experience can influence teacher's readiness towards the application ($r = 0.148$), with teachers' acceptance ($r = 0.158$) and with teachers' ease of use ($r = 0.161$). Conclusively, there were teachers' who were ready to use the application but there were also teachers who did not easily accept the used of the application. Teacher's perception towards the application also depends on their years of teaching experience in schools. Nevertheless, implementation of the application should consider teachers' skill of using the application, teachers' time management and workload, ICT infrastructure in schools and usage of the application for teaching and learning.

ABSTRAK

Guru pada masa kini menghadapi masalah dalam mengintegrasikan teknologi ke dalam kurikulum dan pengajaran di samping memerlukan masa untuk pengintegrasian. Pengenalan aplikasi Frog VLE (Persekitaran Pembelajaran Maya) di sekolah telah membangkitkan keperluan untuk menyiasat persepsi guru di mana pelaksanaan Frog VLE sangat dipengaruhi oleh kecenderungan guru menggunakan alat tersebut. Oleh itu, objektif bagi kajian ini adalah untuk mengetahui persepsi guru bagi menggunakan VLE sebagai salah satu alat untuk pengajaran dan pembelajaran berdasarkan tahap kesediaan, juga berdasarkan konstruk utama dalam Model Penerimaan Teknologi (TAM) termasuk penerimaan guru, persepsi kebolegunaan dan persepsi mudah untuk digunakan. Kajian ini juga menyiasat pengaruh aplikasi tersebut kepada persepsi guru. Kajian ini mengaplikasikan kaedah tinjauan menggunakan soal selidik. Soal selidik ini telah dirangka sendiri dan boleh dipercayai dengan nilai kebolehpercayaannya ialah 0.98. Sampel dipilih menggunakan kaedah persampelan bertujuan di mana 178 orang guru negeri Johor yang telah menggunakan aplikasi tersebut terlibat dalam kajian ini. Soal selidik telah diedarkan secara bersemuka dan secara atas talian. Data dianalisis untuk mendapatkan nilai min, frekuensi dan korelasi menggunakan perisian SPSS. Regresi berganda telah digunakan untuk menyiasat pengaruh VLE terhadap persepsi guru. Tahap kesediaan guru adalah pada tahap sederhana (min = 3.67) dan mereka juga menerima secara sederhana pelaksanaan aplikasi Frog VLE (min = 3.65). Guru juga merasakan bahawa aplikasi Frog VLE adalah berguna (min = 3.58) dan ia mudah untuk digunakan (min = 3.58) untuk pengajaran dan pembelajaran. Bagaimanapun, penerimaan guru tiada kaitan dengan kesediaan mereka, persepsi mereka untuk menggunakan aplikasi Frog VLE berdasarkan kegunaan dan mudah untuk digunakan pada tahap signifikan $p < 0.05$. Dapatan juga menunjukkan bahawa terdapat hubungan yang signifikan antara pengalaman guru menggunakan aplikasi Frog VLE dengan kesediaan guru ($r = 0.148$), dengan penerimaan guru ($r = 0.158$) dan dengan kemudahan guru untuk menggunakannya ($r = 0.161$). Kesimpulannya, terdapat guru yang bersedia untuk menggunakan aplikasi Frog VLE tetapi ada juga guru yang tidak mudah menerima penggunaan aplikasi tersebut. Persepsi guru terhadap aplikasi tersebut juga bergantung kepada pengalaman mengajar mereka di sekolah. Walau bagaimanapun, pelaksanaan aplikasi ini harus mengambil kira kemahiran guru menggunakan aplikasi tersebut, pengurusan masa dan beban tugas guru, infrastruktur ICT di sekolah dan penggunaan aplikasi tersebut dalam pengajaran dan pembelajaran.

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LIST OF ABBREVIATIONS

CAI	-	Computer Aided Instruction
HE	-	Higher Education
HEI	-	Higher Education Institutions
ICT	-	Information, Communication and Technology
MLE	-	Managed Learning Environment
MOE	-	Ministry of Education
MSC	-	Multimedia Super Corridor
NITA	-	National ICT Agenda
NITC	-	National Council
PTA	-	Parent and Teacher Associations
SPSS	-	Statistical Package for Social Science
TAM	-	Technology Acceptance Model
TRL	-	Technology Readiness Level
VLE	-	Virtual Learning Environment
WWW	-	World Wide Web

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Information and Communication Technologies (ICT) is evolving and has become a phenomenon in many sectors over the world. Education sector is one of the sectors that have been affected by the ICT waves. Various success of using ICT has been achieved by researchers , educators and thinkers since 1980s (White , 2008). The presence of internet and World Wide Web (www) has become trends all over the world which also gives pressure to the education sector. The brief history of ICT raises a number of issues that provide options for thinking about the future and the pathways that ICT may take in an education context.

There are many applications of ICT for teaching and learning purposes. One of the applications of ICT for education context is Virtual Learning Environment (VLE). The term virtual education or virtual learning refers to instruction in an online learning environment where teachers and students are separated by time or space , or both , and teacher provides course content through course management applications (e-learning or sharing portals) , multimedia resources , the Internet and video conferencing (Piccoli , 2001). In relation to that, students receive the content and communicate with the teacher via the same technologies (Azad , 2009; Kurbel , 2001). Normally , a VLE provides tools for assessment , communication , uploading of content , return of student's work , administration of students groups,

questionnaires, tracking tools, wikis, blogs, chats, forums and many more over the internet (Azad, 2009).

All of the functions of VLE are useful for students to use in their learning process. Typically, most of the teachers in schools will be the student's role model. However, teacher plays an important role to encourage students to use these tools for learning. Additionally, technologies such as VLE will only be useful when a person has the willingness and is prepared to use it. Under such circumstances, teachers' willingness and perception to use VLE in teaching and learning are very important to eventually guide and encourage students to use VLE technologies for teaching and learning purpose.

1.2 Background of Problem

Today's students came from the 'Net Generation' whom grew up with emerging Internet and ICT. The Net Generations grew up using electronic equipment every day in their life. By the time they reached 21 years old, the average Net Generation are expected to spend: 10,000 hours playing video games, 200,000 hours on e-mail, 20,000 hours watching TV, 10,000 hours on cell phones and less than 5,000 hours reading (Bonamici *et al.*, 2005). In order to meet the need of students from the Net Generation, the process of teaching and learning should accommodate the use of technology to attract the students' attention towards learning.

Internet is one of the simplest ways to get information which favored by many people around the world especially the students. Current students tend to use internet to find materials for educational purposes such as past year questions and supporting notes to complete their assignments or homework (Arthur and Brafı, 2013). Apart from that, findings from Bashir *et al.* (2007) found that 190 persons of their respondents used Internet for preparing class assignments, 135 persons used internet for assistance in their research projects, 51 persons were use internet for the

examination preparation while 31 persons were using it for their specific purposes such as online job searching and application , spending leisure time , chatting , for presentations , projects and notes , communities , poetry reading , career development , to know about latest developments , to know about international political and global affairs , and sports updates.

Accordingly , teachers in Malaysia should be able to adopt with this phenomenon in learning and move forward towards using the provided facilities (Hassan, 2007) where Internet and Web should be used as one of the tools for teaching and learning while it makes teaching and learning becomes more interactive , easy and interesting (Lee *et al.*, 2005). The traditional method of teaching and learning such as the use of blackboard , whiteboard (Boumova, 2008) and slideshow is becoming less interesting (Sandi, 2009). In Malaysia , it is common to see people holding mobile phones regardless of time and location (Wong *et al.*, 2011). According to Osman *et al.* (2012) , most of the mobile phones nowadays are addressed as “smartphone”, as they offer advanced computing power and connectivity than a ordinary mobile phone. Smart phone has become an affordable gadget among Malaysians , particularly youths where even students can afford smart phones especially when government provides the RM200 rebate for young Malaysians to buy smartphones (Ramlee, 2013).

The role of ICT as an enabler in education has been well documented and individual’s ability to capitalize and leverage on the capability of ICT to gain knowledge is very important. However , it is necessary to accommodate a strong rationale why ICT has to be integrated into teaching and learning. Previously there is an array of new technologies such as radios , televisions , slide film projectors , overhead projectors , power point presentation were initially thought to have huge potential in improving education but most of the students already feel bored with these methods (Mann, 2009). Statistic shows that almost 60% of students find at least half their lectures boring and with about 30% claiming to find most or all of their lectures boring (Mann, 2009). One of the main reasons that contribute to student boredom is the use of Power Point (Mann, 2009).

There were many initiatives made by the government to implement ICT in education, however the implementation of the technology is still lacking. One of the problems that lead to the lack of implementation of the technologies is due to the teacher themselves, where most of the teachers feel reluctant towards the new system or application introduced by the Ministry of Education. Honey and Moeller (1990) stated that there are several reasons that caused teachers to be reluctant towards using the technologies. Firstly, the teachers are having personal fears and inhibitions (Honey and Moeller, 1990; Trucano, 2005). Deryn (2001) supported this and by saying that most of the teachers have some feels that can be referred to 'technophobic' which is reluctant to adopt change. This is because the teachers that have technophobic always having faulty while using the technology. Teachers who have had experiences of faulty technology are often skeptical about the capacity of ICT to help raise standards (Deryn, 2001). Besides that, there are teachers that still used the exam-oriented style which make them reluctant to use technology in their lesson. Peter (2010) stated that the teacher feels that they do not have to change their teaching method since all of their students achieve a good grade in their examination.

Teachers' fear of using the technology had caused the problem regarding the management of ICT resources and organizing the classroom for effective subject learning. They still have difficulties in deciding when and when not, to use computers, while others are reluctant to use them at all (Ofsted, 2001). Trucano (2005) and Ertmer et al (2007) stated that many teachers are not confident in using a wide range of ICT resources which can affect the lesson if the teachers still insist on using it.

Additionally, the teachers prefer the traditional teaching based because they feared that the technology might alter they relationship of control and authority with their students (Honey and Moeller, 1990). Traditional teaching based is teacher-dominated interaction. Teaching is deeply teacher centered and teachers are the source of the knowledge, while learners are passive receivers that must memorize things (Hadzimehmedagic, 2013). Research by Honey and Moeller (1990) also found that the teachers think that it is not realistic to use computer in a class that have large number of students. Teachers also feel that computer is basically a disruption

where by using computer, student will have high probability to miss the class lessons and end up playing with the computer (Honey and Moeller, 1990).

In addition , (Demetriadis, Barbas *et al.*, 2002; Pelgrum, Qing, 2001) reports that there are teachers who have difficulty in integrating technology into the regular curriculum and instructions. One of the problems is that there are teachers who would have liked to use computers in their classrooms , but either the equipment were not available or they had problems scheduling time in the computer lab (Honey and Moeller, 1990). This problem will cause teachers to feel reluctant to use technology in their teaching and learning process. In relation to that , Trucano (2005) reported that teaching with ICT will take more time which is usually 10% more than the supposed time. However, the time extra time depends on the teaching material used.

Teachers also feel that using ICT for teaching and learning as not convincing as there is no conclusive evidence of the effectiveness of using ICT (Peter, 2010). Besides that , the teachers also think that the technology will ‘shut down’ their class where all the students do is copy and paste from the internet and did not analyze the information that they obtained (Peter,2010). Also, in Mundy *et al.*, (2012)’s study, they have found that many of the faculty members lack of the technological proficiency needed to take advantage of the new technologies , which make them unable to bring these technologies into the classroom.

Along all the problems in the implementation of ICT in education , Malaysian government has made many initiatives to implement ICT in education as they realized the importance of ICT. Ministry of Education Malaysia recently introduces Frog Asia named Frog Virtual Learning Environment (VLE). Frog VLE is a cloud based system which allows students and teachers to search for almost anything on the internet and built it into a sleek-looking Site. According to Weller (2007) and Azad (2009) , a virtual learning environment is a software system designed or used to support teaching and learning and provide tools such as for assessment, communication, uploading of content, return of student’s work , administration of

students groups , questionnaires , tracking tools , wikis , blogs , chats , forums and many more over the internet .

Technology tool such as Frog VLE application is created to be used especially in education. Although VLE provides a lot of advantages for the users , computer system cannot improve user's performance if it is not properly utilized (David *et al.*, 1989). The Technology Acceptance Model (TAM) proposed that the perceived usefulness and the perceived ease of use of an information system are major determinants of its utilization. People tend to use or not to use an application to the extent that they believe it will improve their working performance. In education sector, teacher's tendency to use or not to use the information system highly depends on their own perception that is , whether it will make the teaching and learning process become more effective. Consequently, the new system can be integrated to the system of education , but still , their usefulness , ease of use and teacher's level of readiness and acceptance should be investigated carefully. Failure to determine its usefulness as well as teachers readiness will lead to the waste of the government's efforts in implementing ICT in education.

1.3 Statement of problem

To cope with the recent trend in learning , Frog VLE application is introduced to teachers and students in Malaysian schools. However, with respect to previous research , teachers practically are found to struggle to apply new strategies in classroom. This is mainly because of the teachers having difficulty in integrating technology into the regular curriculum and instructions (Demetriadis, Barbas *et al.*, 2002; Pelgrum, Qing, 2001) besides needing extra time to integrate it (Trucano, 2005).

The study of teachers' readiness to use the proposed Frog VLE application is important. This is because teacher's readiness will lead to the actual use of the Frog VLE application. Without teacher's willingness and readiness to use the application

, the government effort to implement this application will become less effective. Teachers will continue teaching with the traditional method besides using the newly introduced application.

Moreover , it is also important to study about the teacher's acceptance towards the Frog VLE application. Teachers' acceptance will lead to their intention to use, agreement and enjoyment to use Frog VLE application. If the teachers does not feel enjoy and happy using the application, they will not use the application. This has limits the opportunities for students who are interested in using ICT in education. It is a big loss when the student encouraged to learn but did not have support from the teachers.

Last but not least , the usefulness and ease of use of a certain application is important to determine. In this study, the usefulness and ease of use of the Frog VLE application were determined. This is important because the ease of use of the application will lead to the intention of using it. If the application is not user-friendly , most of the teachers will having difficulty to use it in teaching and learning. This will give result that the teachers will not use the Frog VLE application.

Due to the difficulty in integrating technology into the regular curriculum and instructions, it is important to investigate the teacher's perception towards the Frog VLE application. It will determine the teachers' readiness , acceptance and also the usefulness and ease of use of the application which will leads to the teachers' intention to use the Frog VLE application.

1.4 Research Objectives

The following are the research objectives:

- i. To identify the teacher's perceptions to use VLE as one of the tools for teaching and learning based on level of readiness.

- ii. To examine the teachers perceptions to use VLE application based on the main construct of Technology Acceptance Model (TAM) :
 - a. Teachers acceptance
 - b. Perceived usefulness
 - c. Perceived ease to use
- iii. To investigate the influence of VLE application towards teacher's perception.

1.5 Research Questions

The following are the research questions of the study:

- i. What are the teachers' perceptions on using VLE application for teaching and learning based on teacher's level of readiness?
- ii. What are teacher's perceptions on using VLE application based on
 - (a) Teacher's acceptance according to Technology Acceptance Model (TAM)?
 - (b) Perceived usefulness according to Technology Acceptance Model (TAM)?
 - (c) Perceived ease to use according to Technology Acceptance Model (TAM)?
- iii. What is the influence(s) of VLE application towards teachers' perception?

1.6 Significant of research

This research is significant for the following stakeholders:

i. The Ministry of Education

VLE application is a new tool for teaching and learning and still a small number of schools that have been used the application. So , this research will study about the teacher's readiness and acceptance to use Frog VLE. According to that , the finding of this study can help the ministry to improve all the shortage and limitation that the teachers faces when using Frog VLE application.

ii. Frog Asia

Frog Asia is the developer of the Frog VLE application which will be used for implementations in this research. If there is no lacking in the Frog VLE application , they can always maintain their application besides adding more meaningful and attractive function. From the research , Frog Asia will also know the teachers perception of their application. Frog Asia also can improve their application if there is any limitation.

iii. Teachers

This research will increase teacher's awareness to use Frog VLE application as well as build their confidence to use this new application. The usage of Frog VLE also will help teachers to save their time and can do any other work.

iv. Students

In Malaysia , usually , the teachers are the individuals that will determine the method of teaching and learning in class. Hence, when teacher decide to use Frog VLE in their teaching and learning , student might be will more interested in the teaching and learning session. Indirectly , this will help student to more focus in class and get what the teachers teach in class.

1.7 Scope and limitation of the research

This research is about finding the teachers' perceptions to use VLE in teaching and learning based on level of readiness and teachers acceptance. There are many VLE available for teaching and learning. In this study , the focus is on the Frog VLE application as the online learning tool. Frog VLE application is one of the recent tools introduced by Frog Asia in Malaysia's education system. It is still at its early stage that only several schools in Malaysia had used this application. Hence, teachers are among the first individuals who will use the application before implementation among the students. Due to that reason , this study is limited to teachers of secondary schools in Malaysia. The teachers' perception in this study will only include the perception based on level of readiness, teacher's acceptance, perceived usefulness and perceived ease of use based on TAM. In the survey , the emphasis is more on Frog VLE as a learning tool and communication tool for learning purposes.

1.8 Definition of terminologies

1.8.1 Information and Communication Technologies (ICT)

The acronym ICT is taken to stand for information and communication technology or alternatively information and communications technology. The term ICT is often used as an extended synonym for information technology (IT) which maintains its usage in government , business , and industry and in relation to tertiary and other academic courses dealing with such areas as programming, database design and expert systems (Lloyd, 2005). Another useful definition of ICT also been suggested by Lloyd (2005) that it:

... generally relates to those technologies that are used for accessing, gathering, manipulating and presenting or communicating information. The technologies could include hardware (e.g. computers and other devices); software applications; and connectivity (e.g. access to the Internet, local networking infrastructure, video conferencing). What are most significant about ICT are the increasing convergence of computer-based, multimedia and communications technologies and the rapid rate of change that characterizes both the technologies and their use.

(Toomey, 2001)

In this research , ICT is defined as the system of various technologies, tools and devices that are used to transmit, process, store, create, display, share or exchange information by electronic means. (UNESCO, 2007)

1.8.2 Virtual Learning Environment (VLE)

Virtual Learning Environment (VLE) is a web-based communications platform that allows students , without limitation of time and place, to access different learning tools, such as program information , course content , teacher assistance , discussion board , document sharing systems , and learning resources (Erik and Jeroen, 2006). In this research , the term of VLE is used for the Frog Virtual Learning Environment (VLE). Frog VLE is a web-based learning system that replicates real-world learning by integrating virtual equivalents of conventional concepts of education (Frog Asia, 2013). For example , teachers can assign lessons, tests, and marks virtually , while students can submit homework and view their marks through the VLE. Parents can view school news and important documents while school administrators can organize their school calendars and disseminate school notices via the Internet. It can be regarded as a social network for schools.

1.8.3 Technology Acceptance Model (TAM)

TAM is a specific model developed to explain and predict user's computer usage behavior. TAM specifies the causal relationship between system design features, perceived usefulness , perceived ease to use , attitude towards using an actual usage behavior (Davis, 1993) In this research , a technology acceptance model (TAM) is used to examine teacher acceptance and usage behavior in information systems research and provide an adequate foundation to evaluate teacher's preparation and readiness for the virtual learning environment. Using TAM , the user acceptance is determined by two key beliefs which are perceived usefulness and perceived easiness (Joseph *et al.*, 2002). In this research , perceive usefulness is defined as the extent to which teachers believes that using Frog VLE application will enhance the teachers job performance. In relation to that , perceived

ease to use is defined as the degree to which the teachers believes that using the Frog VLE application would be free of physical and mental effort.

1.8.4 Level of Readiness

Readiness can be defined in many ways. Fowler (1998) has define readiness in two principal ways which are first, as a movement, such as promptness or quickness; seconds , as a willingness or inclination. In technology they also have Technology Readiness Level (TRL) where it measures the maturity of certain technology. In this research , readiness is focused on state of preparedness and willingness of the teachers to use and adopt the Frog VLE application for teaching and learning purpose.

1.8.5 Acceptance

There is several definition of acceptance. Acceptance can be define as the action of consenting to receive or undertake something offered , the process or fact of being received as adequate , valid , or suitable , agreement with or belief in an idea or explanation and willingness to tolerate a difficult situation (Oxford Dictionary,2013). Acceptance also can be defined as the act of taking and receiving something offered. So in this research acceptance will be used in term of teacher's acceptance. Teacher's acceptance is referred to the teacher's intention to use, agreement and enjoyment to use Frog VLE application.

1.9 Conclusion

The focus in this chapter is to show the rationale for conducting this study. Hence , background of problem and problem statement is being included in this chapter. This chapter is being discussed how to address the issue and problem that had been identified. This chapter also presents the research objectives to inform about the main goal of the research. In addition , the research question and significant of the research are included in this chapter. Research scope and limitation are also stated to highlight the boundaries of this research. Last but not least, the definition of terminologies used in this research is also included in this chapter. The following chapter will discuss about the literature review of the research.

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